Conclusions: The evidence showed that abnormal expressed microRNA-21 of CD4+T lymphocyte participated in the regulation process of Th2 cells differentiations, and function. There was correlation between abnormal expressed microRNA-21 and myocardial injury after PCI. MicroRNA-21 may involve in the immunoregulation process of myocardial injury after PCI.

GW25-e4328

The Effect of MicroRNA-21 on the Differentiations and Functions CD4+T Lymphocytes in Patients with Acute Coronary Syndrome

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Objectives: To investigate the effect of abnormal microRNA-21 expression on the differentiations and functions CD4+ lymphocyte in patients with acute coronary sysdrome.
Methods: Twenty patients with ACS were enrolled in the study. Blood samples were taken from peripheral vein.The CD4+T lymphocyte were isolated from mononuclear cells prepared with Ficoll-Hypaque density-gradients centrifugation from human peripheral blood by magnetic cell sorting system.The CD4+T cells were seeded in culture plates of 6 wells.Each well contained 2ml RPMI-1640 medium without 10% fetal bovine serum.There are four group CD4+T lymphocytes in the experiment:control groups, microRNA-21groups, microRNA-21 inhibitor groups, and FAM-siRNA groups.After stimulated with phytohemagglutinin, the CD4+T lymphocytes and culture supernatant were collected for the following experiments.The frequencies of Th1 and Th2 cells were measured by flow cytometry analysis (FACS).The total RNA and protein were extracted from CD4+T lymphocytes using Trizol and cell lysis buffer for western blotting, respectively.The level of IFN-γRα, T-bet, GATA-3 mRNA expression were measured by qRT-PCR.The level of IFN-γRα, T-bet, GATA-3 protein expression were examined using western blotting.The productions of IFN-γ and IL-4 in culture superatants of CD4+T lymphocytes were detected by enzyme-linked immunosorbent assay (ELISA). Pearson correlation analysis was conducted to examine the association between IFN-γRα and IFN-γ, IL-4.
Results: The FACS showed that microRNA-21 could promote CD4+T lymphocytes to Th1 cells and the Th1 frequencies were also significantly increased in microRNA-21 group compared with the control group and miRNA-21 inhibitor group[(63.2±8.6) % vs (47.2±10.3) %, P<0.01; (63.2±8.6) % vs (52.9±10.1) %, P=0.024, respectively].There was no significant difference between the three groups in the frequencies of Th2 cells (F=0.228, P=0.798).In comparison with the control group, there was significant increase in the level of T-bet mRNA expression in miRNA-21 group (P<0.01). The level of T-bet mRNA expression in microRNA-21 inhibitor group was significantly lower than that in microRNA-21 group (P<0.01). No significant differences were found between the three groups in the level of IFN-γRα and GATA-3 mRNA expression (F=1.055, P=0.362; F=1.601, P=0.220, respectively). The level of IFN-γRα protein expression in microRNA-21 group was significantly higher than that in microRNA-21 group and microRNA-21 inhibitor group (all P<0.01). There was no significant difference between the three groups in the level of GATA-3 protein expression (F=0.098, P=0.907.) The culture supernatant concentration of IFN-γ in microRNA-21 group was significantly increased than that in the control group and microRNA-21 inhibitor group (all P<0.01). No significant difference was observed between the three groups in the culture supernatant concentration of IL-4 (F=0.384, P=0.685). There was significant negatibe correlation between the protein expression of IFN-γRα and the level of IFN-γ. No significant correlation were found between IFN-γRα and IL-4.
Conclusions: It is evident that microRNA-21 can promote Th2 cells differentiations, and thus improving the function, which partly attributed to inhibit the expression of IFN-γRα protein and may play an important role in the pathogenesis of acute coronary sysdrome.

GW25-e4345

Correlation polymorphism of GDF-15 gene with the Acute Myocardial Infarction (AMI) with early formation of collateral circulation

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Objectives: To explore the correlation polymorphism of -3148C/G site of GDF15 (Growth differentiation factor - 15) gene with the formation of collateral circulation of Acute Myocardial Infarction (AMI) in Han people of Taiyuan area.
Methods: The polymerase chain reaction (PCR), gene sequencing and sequence flanking were used to detect and analyze the polymorphism of -3148C/G site of GDF-15 gene for 92 ST-elevation myocardial infarction (STEMI) patients (Vascular occlusion within 3-12 hours) with 68 collateral circulation group, 24 non-collateral circulation group and 56 Patients with normal coronary angiography in a control group.
Results: The genotype frequencies of CC, GC were 80.43% and 19.57% in the AMI group, which were 60.71% and 39.29% in the control group respectively. P values of the two groups at -3148C/G CC, GC genotype frequencies distribution is < 0.009. The risk genotype GC, OR=2.660, 95% of confident interval is 1.265- 5.595. And the genotype frequencies of CC, GC were 85.29% and 14.71% in the AMI (Vascular occlusion within 3-12 hours) collateral circulation group and 66.67% and 33.33% in the AMI non- collateral circulation group individually, P values of two groups at -3148C/G CC, GC genotype frequencies distribution is <0.05; The risk genotype was GC, OR=2.900, 95% of confidence interval is 0.983-8.556.
Conclusions: There is a correlation the polymorphism of -3148C/G site in GDF15 gene and the AMI (Vascular occlusion within 3-12 hours) patients with collateral circulation in Ham people of Taiyuan area.

GW25-e5371

Response of NLRP3 inflammasome in human peripheral blood monocytes to statin therapy

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Objectives: In our study we aimed to evaluate the effect of high-dose rosuvastatin (HIGH-RSV) versus low-dose rosuvastatin (LOW-RSV) on NLRP3 and Cathepsin B expression in peripheral blood monocytes in patients with acute coronary syndrome (ACS).
Methods: Our study one hundred and twenty three subjects (123 subjects) whihch included acute myocardial patients (AMI; n=53), unstable angina patients (UA; n=40) and controls with no evidence of coronary artery disease (C; n=30). Acute myocardial infarction (AMI) and unstable angina (UA) were randomly devided into high-dose rosuvastatin [HIGH-RSV (20mg)] or low-dose rosuvatatin [LOW-RSV (5mg)] groups. Blood samples from each study subject were drawn at four time points [at admission (~6 hours after chest pain and before statin administration), after 24-36 hours, after 1 week and after 4 weeks]. Blood was centrifuged and plasma was separated. Monocytes were also isolated for further analysis. In plasma and monocytes, NLRP3, Cathepsin B, Interleukin-18 (IL-18), Pro-Interleukin-18 (Pro-IL-18), Interleukin-1b (IL-1b), Pro-Interleukin-1b (Pro-IL-1b), oxidized low density lipoprotein (ox-LDL) expressions were appropriately evaluated with real time PCR, Flow cytometry, Western blot and Elisa. Concentrations of serum inflammatory markers were also evaluated for correlation with NLRP3.
Results: At baseline, acute myocardial infarction (AMI) and unstable infarction (UA) patients had higher NLRP3, Cathepsin-b, IL-18 Pro-IL18, IL-1b and Pro-IL1b expression in circulating monocytes as compared with control group (P<0.05). This corresponded with higher levels of serum total cholesterol, serum LDL cholesterol and ox-LDL in unstable angina (UA) and Acute myocardial infarction (AMI) patients (P<0.05). High dose of rosuvastatin (20mg) caused significantly stronger (P<0.05) changes in NLRP3, Cathepsin B and their downstream cytokines as compared to low dose of rosuvastatin (P>0.05) from baseline to the fourth time point after 4 weeks. Our results also showed positive correlation between NLRP3, Cathepsin-b and other inflammatory mediators.
Conclusions: Circulating monocytes in acute coronary syndrome (ACS) had a higher expression of NLRP3, Cathepsin B, and their downstream cytokines. Moreover, we demonstrated that in ACS patiens there was good correlation between NLRP3 and Catherpsin B. We also showed that high dose of statin had a more pronounced and desirable effect on the dynamic changes of NLRP3, Cathepsin B, their downstream mediators. These findings add new insights to the pathogenesis and management of ACS with NLRP3 as the potential target.

GW25-e0537

Association of the neutrophil–lymphocyte ratio (NLR) with outcomes in patients admitted for an acute coronary syndrome

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Objectives: Patients with documented acute coronary syndromes or ACS exhibit a wide spectrum of early risk of death, ranging from 1 to 10%. An elevated leukocyte count has been identified as an independent predictor of an increased risk for long-term mortality and myocardial infarction. An elevated neutrophil count predicts a worse outcome in ACS. In contrast, a low lymphocyte count is related to high risks of adverse outcomes and mechanical complications, low ejection fraction, high degree of myocardial necrosis and mortality in patients with ACS. The neutrophil-lymphocyte ratio (NLR), therefore, integrates for two WBC subtypes with opposite actions in terms of vascular inflammation. Among patients diagnosed with ACS in the Philippine General Hospital, we aim to determine if an elevated NLR taken within 24 hours of admission is associated with higher rates of cardiovascular morbidities & mortalities.
Methods: A prospective cohort of adult patients admitted with a diagnosis of ACS (unstable angina, NSTEMI, STEMI) was conducted. The participants were stratified into two groups: low to intermediate NLR (NLR $\leq$ 6.5) and high NLR (NLR > 6.50). The primary outcome was in-hospital mortality. Secondary outcomes include development or worsening of congestive heart failure (CHF) and the development of cardiogenic shock, re-infarction, dialysis-requiring renal failure, high-risk pneumonia, and arrhythmias.
Results: 117 patients with a mean age of 60 +/- 13 were included. Majority had 1-4 traditional risk factors for ACS. Diagnosis on admission was unstable angina (28%), NSTEMI (40%), and STEMI (37%). Analysis of data showed that the odds of in-hospital deaths among those with a high NLR is 5.71 times higher compared to those with low-intermediate NLR [OR 5.71 (1.53-21.23, p 0.009)]. Using linear regression, the NLR of patients who were non-survivors was computed at 9.91, while the NLR of those who survived was 5.47. A high NLR was also predictive of the development or worsening of CHF [OR 4.75 (1.47 – 15.3, p 0.009), shock [OR 5.0 (1.97 – 12.67,